DOCUMENT RESUME

ED 479 241 IR 022 031

AUTHOR	Keefe, Thomas
TITLE	Enhancing a Face-to-Face Course with Online Lectures: Instructional and Pedagogical Issues.
PUB DATE	2003-04-00
NOTE	11p.; In: Teaching, Learning, & Technology: The Challenge Continues. Proceedings of the Annual Mid-South Instructional Technology Conference (8th, Murfreesboro, Tennessee, March 30-April 1, 2003); see IR 022 027.
AVAILABLE FROM	For full text: http://www.mtsu.edu/~itconf/proceed03/109.html/.
PUB TYPE	Reports - Evaluative (142) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Active Learning; *Computer Mediated Communication; *Courseware; Distance Education; Educational Technology; Higher Education; *Instructional Design; *Interaction; Lecture Method; Online Courses; Student Attitudes; Student Surveys; *Technology Uses in Education; *Web Based Instruction
IDENTIFIERS	*Face to Face Communication; Streaming Video

ABSTRACT

Since 1999, and as part of an Ameritech grant, the author has systematically investigated use of streaming media to enhance face-to-face classes. Technology invites experimentation but raises questions about such things as student acceptance, student use, academic performance, and what to do with class time when lectures are put online. Students appear to easily master the technology, and today software is available to help the instructor with the task. The harder issues to deal with relate to instructional and pedagogical issues. For technology to be used to its full advantage, it should be used to create an active learning environment. Specific topics covered in the paper include: using courseware to put lectures online; students' confidence with use of courseware; an approach for using Internet-based educational technology to enhance teaching; communication theory and Internet-based instructional technology; a classification of educational media by type of interaction and timing of the message; and gaining face time by streaming lectures. (Contains 14 references.) (Author/MES)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 479 241

Enhancing a Face-toFace Course with Online Lectures: Instructional and Pedagogical Issues

By: Thomas Keefe

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

R.C. Jones

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

IR022031

BEST COPY AVAILABLE

Eighth Annual
Mid-South Instructional Technology Conference
Teaching, Learning, & Technology
The Challenge Continues
March 30-April 1, 2003

2003 Conference Proceedings

Enhancing a Face-to-Face Course with Online Lectures: Instructional and Pedagogical Issues

By: Thomas Keefe
Track 1 - Effective Technology Based Learning Environments
Interest: General :: Lecture/Presentation :: Level: Beginner

Abstract

Since 1999, and as part of an Ameritech grant, the author has systematically investigating use of streaming media to enhance face-to-face classes. Technology invites experimentation but raises questions about such things as student acceptance, student use, academic performance, and what to do with class time when lectures are put on-line. Students appear to easily master the technology, and today software is available to help the instructor with the task. The harder issues to deal with relate to instructional and pedagogical issues. For technology to be used to its full advantage, it should be used to create an active learning environment.

Proceeding

Introduction

In this paper I will discuss the use of streaming media to enhance a traditional face-to-face class. A traditional course is built around the time honored educational activities of lecture, interaction, and testing. They occur in a seamless fashion, in a fixed order. In a traditional classroom, instruction begins with lecture that is used to provide students with a first-exposure to a course's content. Interaction follows and may take the form of a teacher/student dialogue. Interaction is used to assist students to more deeply process course content. Finally, testing occurs to assess

knowledge transfer. The traditional paradigm implies a fixed order, but there is nothing sacrosanct about it. Others (e.g., Walvoord & Johnson Anderson, 1998) have proposed altering this traditional order. The approach I find most exciting is to use Internet technology to enhance instruction by freeing up time in the classroom for more interaction. In this paper I will talk about pedagogical issues involved in moving lectures of a traditional class on to the Internet as pre-recorded streaming media. The challenge and opportunity of technology invites experimentation but raises questions about such things as student acceptance, student use, academic performance, active learning, and what to do with class time when lectures are put on-line. I have found that students easily master the technology, and today software is available to help an instructor with the task. The harder issues that need to be addressed relate to instructional design and student behavior. For the technology to be used to its full advantage it should be used as part of a strategy employing active learning by creating an active learning environment.

Where to Put Lectures On-line: Courseware

Since 1999, I have used courseware to teach 15 sections of on-line, face-to-face, and enhanced versions of courses. I consider an enhanced course to be one where activities have been selectively moved out of the classroom and on to the Internet to free up time for other classroom activities. When I began looking to take my lectures on-line, the first hurdle I faced was how to create web pages where my students could come for instruction. The Internet is made out of electronic bits and bites that need to be programmed or else they do not behave properly. I am no programmer, and for me the notion of learning to create web pages was an onerous and challenging notion. However, I found an easy solution to my problem. Courseware automates and simplifies the process of developing and delivering distance-education courses. Courseware is a unified suite of Internet-based software intended to ease that burden. Each semester when I create the websites for my course sections, I use courseware created by my University (Indiana University, 2001,a). Other commercially available courseware packages are readily available. See Indiana University (2001b) for a comparison of features among popular versions of courseware. In general, courseware contains a comprehensive tool set including such features as: e-mail, discussion forums (electronic bulletin boards), chat rooms, tests and surveys, and Internet research tools like search engines and library reference databases. According to creators of courseware (e.g., Indiana University, 2001,a; Blackboard, Inc., 2001), it may be used to create an on-line course, or to complement face-to-face instruction.

Students' Confidence with Use of Courseware

My students are non-traditional students, with very little, or no, previous experience with instructional courseware. To determine my students' perceptions about instructional technology, I have been surveying them before and after each semester. I gather information about demographics, psychological measures, and their perceptions, such as courseware satisfaction. In addition, I monitor their software use and course performance. Among other things, the surveys include questions about their confidence that they can competently use each of a variety of software applications including the courseware used in the course. My experiences

indicate that they start out any given semester ambivalent about their ability to use courseware. Specifically, they are neither uncertain nor certain that they can use the software competently. After completing the first survey, students received 75 minutes of training the first day of class. They had the opportunity to practice by using the courseware over the rest of a semester, receiving support from the campus learning and teaching center as needed. Students have shown large improvements in their confidence with using courseware. By the end of a semester, I have found students to be uniformly confident with their abilities to use courseware. They are as confident with courseware as they were with the use of a word processor at the beginning of a semester.

An Approach for Using Internet-based Educational Technology to Enhance Your Teaching

In a pure Internet-based course, all the activities are moved on to the Internet and become accessible 24/7, at times students prefer. Other options are available that fit with sound pedagogical practices. The goal of active learning (e.g., Bonwell & Eison, 1991) is to have students involved in an active learning environment. Figure 1 categorizes the location of various education activities into three types of courses, a traditional, an Internet-based, or an enhanced course. The approach I find most exciting is to use Internet technology to enhance instruction by freeing up time in the classroom for creating an active learning environment. Figure 1 indicates in this enhanced course, everything but interaction has been moved out of the classroom and onto the Internet. More generally, I consider an enhanced course to be one where activities have been selectively moved out of the classroom and on to the Internet to free up time for other classroom activities such as active learning. This use of the technology has been the guiding principle in several course redesigns that I have performed over the summers of 2000, 200, and 2002. Specifically, I have experimented with using Internet technology to free up classroom time by removing lectures, pre-test, evaluative exams, and administrative activities from the face-to-face classroom and using the time for more interactions.

Figure 1
Location of Activities

	Lecture	Interaction	Testing	Administration
Traditional	Face-to-face	Face-to-face	Face-to-face	Face-to-face
Internet-based	Internet	Internet	Internet	Internet

Enhanced	Internet	Face-to-face	Internet	Internet

However, before you take the plunge and go on-line, I need to raise some caution flags. Reviews of the distance-education literature have looked at the impacts of using technology to perform various education activities that have traditionally been done face-to-face in a classroom. The "no significant difference effect" is arguably the most enduring phenomena in the distance-education literature (Russell, 1999; Hanson, Maushak, Schlosser, Anderson, Sorensen, & Simonson, 1997; Wetzel, Radtke, & Stern. 1994). It supports using more technology in education, but not because it increases teaching effectiveness. According to this phenomenon, since technology is as effective as traditional means, it should be used because it is cheaper and more convenient. Ironically, if the "no significant difference effect" is true, technology makes no difference, is unimportant, and can be justified, only, based on cost and convenience. What we will look at next are some good, solid educational reasons to move lectures and other activities onto the Internet. To better understand the logic of the approach I have been taking, it is helpful to look at communication theory.

Communication Theory & Internet-based Instructional Technology

Bringing students together in a classroom is a perfect place for face-to-face interactions among instructors and students. However, the traditional approach is to use class time for one-way lectures. Educators have criticized the use of traditional lecture for being a monologue rather than an interaction (e.g., Bonwell & Eison, 1991; Johnson, Johnson & Smith, 1991; Walvoor & Johnson Anderson, 1998). Using class time for one-way lectures may be a waste of valuable educational time. To better understand what activities are best put onto the Internet and what activities to keep in a classroom, it is helpful to look at Internet-based instructional technology as a set of communication channels.According to communication theorists (e.g., Daft & Lengel, 1984; 1986), the selection of an appropriate media channel is key to effective communication. Seen in this light, to make education more effective by using instructional technology requires the appropriate selection of communication channels based on the nature of the specific task to be performed.

Media are the means used to transfer a message between a sender and receiver. Media vary in terms of information richness (e.g., Daft & Lengel, 1984; 1986), which is the information carrying capacity of a media; and messages vary in terms of complexity, or their demand for carrying capacity. When a match occurs between the carrying capacity of a media and the complexity of a message, effective communication happens. Oversimplification or overload occurs when the carrying capacity of a media does not appropriately match the demands of the information being communicated. For example, in a traditional lecture, the instructor talks and the students listen and take notes. When lectures are a one-way process, the same outcomes may be achieved by streaming lectures over the Internet as by lecturing in class. Lecturing in class is a time intensive activity that requires coordination between students and an instructor who must repeatedly travel to the classroom.

Using class time for one-way communication may be seen as a waste because of oversimplification – the tasks are too simple given the information richness and value of face-to-face experience to warrant use of class time in this way.

According to Daft and Lengel (1986), face-to-face communication is the richest media because it allows the participants to simultaneously employ verbal and visual communication, as well as body language and immediate feedback. As in the example of an enhanced course in Figure 1, it would seem that information richness of face-to-face communication is best suited to the demands of interactive teaching that were used to fill the time in class created by moving administrative, lecture, and testing activities on-line.

Education experts stress the need for more interactions of students with instructors and other students. For example, Hatfield (1995) lists seven principles of good practice built around interaction as ways to improve undergraduate education. Others advocate techniques like active learning (e.g., Bonwell & Eison, 1991), or collaborative learning (e.g., Johnson, Johnson, & Smith, 1991). All of these techniques rely on increased levels of student interaction to foster student motivation and learning. In terms of communication theory, interactive teaching techniques like this require the presence of communication channels that allow feedback to occur, the more promptly the better.

Even though face-to-face communication can satisfy the communication demands of interactive teaching techniques, there are a variety of Internet-based media available to enhance the process without the cost of using up valuable face time. Figure 2 displays media commonly used in Internet-based and face-to-face education listed side-by-side. It displays communication channels categorized by types and synchronicity of interaction. In terms of interaction type, Figure 2 classifies media channels as either interactive or one-way – with or without feedback. Synchronicity refers to the timing, or synchronization, of communication transfers between a sender and a receiver. Figure 2 indicates that the timing of a message can be classified as synchronous or asynchronous. Synchronous means "live," that communication between a sender and receiver takes place at the same time. To be synchronous, communication does not have to be face-to-face; it does have to be simultaneous. Asynchronous communication does not have to be on-line; it means that a message is sent and received not at the same time. Any pre-recorded message is asynchronous. Documents are a form of asynchronous communication because the message is read at a different time than it was written. Asynchronous communication is not even predominately the domain of the Internet! Yes! The professor who assigns Aristotle for reading is using asynchronous communication. Asynchronous Internet-based instruction, or AIBI, is a new term. AIBI sounds more mysterious than it is. It is frequently used to indicate an asynchronous communication channel unique to the Internet. As we have learned, while the Internet and AIBI are new, asynchronous communication is not. More importantly, all of the asynchronous media channels available in an Internet class are also available in a traditional face-to-face course enhanced with instructional technology.

Figure 2
Classification of Educational Media by Type of Interaction and Timing of the Message

	Timing of the Message	
Type of Interaction	**Asynchronous (pre-recorded)**	**Synchronous (live)**
Interactive (With feedback)	Internet-based: A. Discussion Forums B. E-mail	Internet-based: A. Keyboard-based chat, Audio Chat, A/V Chat Face-to-face: A. Instruction (such as dialogue, exercises, or projects, both individually or in a collaborative environment for instruction)
One-way	Internet-based: A. Postings (such as assignments, syllabus, schedules, texts of lectures, reading assignments for *multiple purposes*) B. On-line tests C. Streamed Lectures D. Internet links E. Other technologies: CD-ROMS/DVD's, Videos Cassettes, Audio Cassettes Face-to-face: A. Books B. Handouts C. Other technologies: CD-ROMS/DVD's, Videos Cassettes, Audio Cassettes	Face-to-face: A. Lectures B. Tests

Gaining Face Time by Streaming Lectures

Want students to come to class prepared to interact on course content, and at the same time be sure that you have covered all the material for your course? I have always wanted to incorporate interesting interactive teaching techniques that I had heard, or read, about but I have felt an obligation to use class time to cover course material. An important point that I am beginning to appreciate is that a decision to use–or not to use-Internet technology in a course should not be looked as a tradeoff between utilitarian concerns and teaching effectiveness. By using Internet-based communication channels, sometimes you can have your cake and eat it too. To make sure that students come prepared to interact and to be able to cover content, I use pre-recorded lectures streamed over the Internet and on CD-ROMs. Students are directed to watch the lectures before class in tune with the course schedule. Then, the class meetings are used solely for interactions focused on more deeply exploring the material that has been covered in the lectures and textbook. To assure that students watch lectures and read the book before coming to class, I use on-line pre-tests supported by participation credit.

The pre-recorded lectures that I have been streaming over the Internet take the form of narrated PowerPoint © slide shows that can be accessed from links in the course's website on courseware to the textbook publisher's website, and from CD-ROMs, played using Microsoft's © multimedia player. Readers are invited to browse and play course lectures on-line by visiting the website for Krietner and Kinicki's textbook (2001) using Microsoft Internet Explorer © at http://www.mhhe.com/business/management/kreitner5e/student/olc/ch01lecture.mhtml.

Conclusion

Clearly, distance education technology can be used in both Internet-based and face-to-face classrooms. The challenge and opportunity of technology invites experimentation. Interestingly, I found that high levels of technology could be associated with high levels of interaction. The possibilities raise questions about student acceptance, use, and academic performance that are yet to be fully investigated. I have found that students easily master the technology, and today courseware is available to help an instructor with the task. The central point of their efforts was to use computers to increase student interaction based on frequent dialogue and prompt feedback, thus fostering motivation and learning in their classrooms.

References

Bonwell, C.C.,& Eison, J.A. (1991). Active learning: Creating excitement in the classroom. ASHE-ERIC Higher Education Report, no. 1. Washington, D.C.: The George Washington University, School of Education and Human Development.

Daft, R.L., & Lengel, R.H. (1984). Information richness: A new approach to managerial behavior and organization design. In B.M. Staw & L.L. Cummings (Eds.)

Research in organizational behavior, (6: 191-233), Greenwich, CT: JAI Press.

Daft, R.L., & Lengel, R.H. (1986). Organizational information requirements, media richness, and structural design. Management Science, 32: 554-571.

Hanson, D., Maushak, N., Schlosser, C., Anderson, M., Sorsenson, C., & Simonson, M. (1997). Distance education: Review of the literature (2nd Ed.). Washington, DC, and Ames, IA: Association for Educational Communications and Technology and Research Institute for Studies in Education.

Hatfield, S.R. (editor) (1995). Seven principles in action: Improving undergraduate education. Anker Press.

Indiana University (2001,a). What is Oncourse? [Online]. Available:<http://kb.indiana.edu/data/agku.html>. [March 29, 2001].

Indiana University (2001,b). WebCT and Oncourse: Feature comparison chart. [Online]. Available:<http://www.center.iupui.edu/oncourse/comparison_chart.html>. [March 29, 2001].

Johnson, D.W., Johnson, R.T., & Smith, K.A. (1991). Cooperative learning: Increasing college faculty instructional productivity. ASHE-ERIC Higher Education Report, no. 4. Washington, D.C.: The George Washington University, School of Education and Human Development.

Kreitner, R., & Kinicki, A. (2001). Organizational behavior. (5th ed.) New York: McGraw-Hill Company.

Phillips, R., & Merisotis, J. (1999). What's the difference? A review of contemporary research on the effectiveness of distance learning in higher education. Washington, DC: The Institute for Higher Education Policy. Available: <http://www.ihep.com/difference.pdf>.

Russell, T.L. (1999). The no significant difference phenomenon: as reported in 355 research reports, summaries and papers (Faculty Publication Collection). Raleigh: North Carolina State University.

U.S. Department of Education, National Center for Education Statistics (NCES). (1999) Distance education at postsecondary education institutions: 1997-1998. NCES 2000-013, by Laurie Lewis, Kyle Snow, Elizabeth Farris, Douglas Levin. Bernie Greene, project officer. Washington, D.C.

Walvoord, B.E. & Johnson Anderson, V. (1998). Effective grading: A tool for learning and assessment. San Francisco: Jossey-Bass.

Wetzel, C.D., Radtke, P.H., & Stern, H.W. (1994). Instructional effectiveness of video

media. New Jersey: Lawrence Erlbaum Associates.

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

X	This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.
	This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").